LAB 4 - Exporting the Fieldbook - Overview

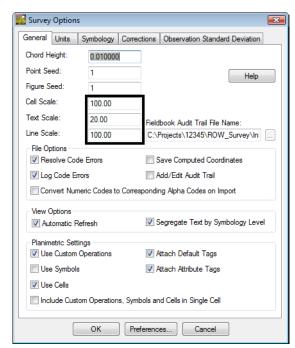## Lab 4.1 - Exporting Survey Data to Graphics - Overview

InRoads Survey can export the fieldbook in 3 different formats. These formats are CAD graphics, Surfaces, and Alignments. Begin by exporting graphics to a MicroStation DGN file. This will create a basemap to be used and referenced by the designers.
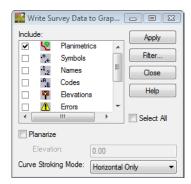
Section Objectives:

♦   Know what to modify in Survey Options prior to exporting.

♦   Export a Survey Fieldbook to a design file.

♦   Know the difference between CAD and Fieldbook viewing.

♦   Work with Survey levels and level filters.

1. Launch InRoads Survey if it is not already;

    a. Open *12345SurveyTopo100Scale01.dgn* from the *Working* folder.

    b. Open *12345SURV_Fieldbook.fwd* from the *Field_Books* folder.

2. Disable the display of any dynamic graphics shown on the screen.

    Toggle on **View Planimetrics** button 　 turn off any other symbols, names, codes, etc. that may have enabled.

3. Verify the *12345SURV_Fieldbook.fwd* fieldbook is active. The fieldbook that is active has the red box around the fieldbook button.

4. To modify the scale as it relates to cells, text, and linestyles go to
   Tools > Survey Options > [General]. The *Survey Options* dialog will appear.

5. Set the Scales for *Cell*, *Text*, and *Line* as shown below.

   ♦ Cell Scale:**100**

   ♦ Text Scale:**20**

   ♦ Line Scale:**100**

6. **<D>** the **OK** button. The *Survey Options* dialog will close.

7. Once the settings are complete, to write the survey data to graphics, go to the InRoads pull down menu **Survey > View Survey Data > Write Survey Data to Graphics…** the *Write Survey Data to Graphics* dialog will open.
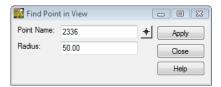

Note: By default having any dynamic graphics still toggled on, those same components would be toggled on in the Write Survey Data to Graphics dialog.
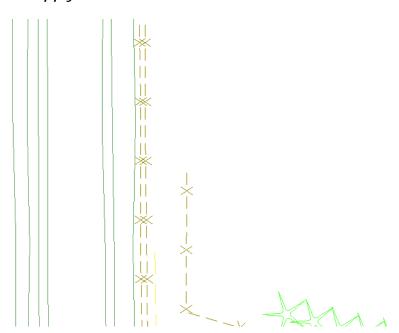
8. Set Curve Stroking: **Horizontal Only**

9. **<D>** the **Apply** button. The graphics will be created in the design file.

10. Watch the **Status Bar** as the graphics are written to the design file.

11. **<D>** the *Close* button in the *Write Survey Data to Graphics* dialog.

12. Toggle off all View Survey buttons.

13. From the InRoads Survey pull-down **Survey > Find a Point in a View** the
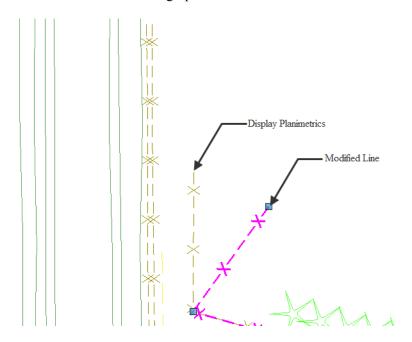   *Find a Point in a View* dialog will appear.

14. Key-in Point Name: *2336*

15. Key-in Radius: *50*

16. **<D>** the *Apply* button. The MicroStation view will center to shot number *2336*.

> ***Note:*** The graphics displayed are MicroStation elements written to the design file. The
> graphics become independent from the survey data. There is no linkage from the
> MicroStation graphics back to the survey data. Therefore it is important to
> remember that if changes to the survey data are made, the survey data will need to
> be rewritten to the CAD file after editing.

To demonstrate this concept, use MicroStation tools to manipulate the displayed survey graphics.

17. Delete, move, or otherwise modify the on-screen graphics.

18. Review the survey fieldbook 🔲 to verify data integrity.

19. Toggle on dynamic display of **Planimetrics** 🔖 Notice the location of the fieldbook data vs. the modified MicroStation graphics.
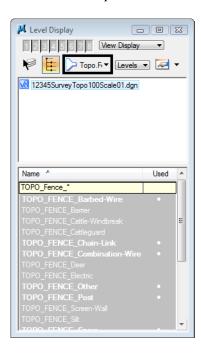

20. Toggle off dynamic display of **Planimetrics** 🔖

21. From the MicroStation *Primary Tools* toolbar **<D>** the **Level Display** dialog. The *Level Display* dialog will appear.
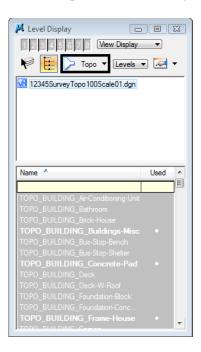

22. From the filters pull-down select the **Topo > Fence** filter.

23. Practice turning **ON** and **OFF** the fence levels in MicroStation.

24. From the filters pull-down select the **Topo** filter. This will help when viewing only the levels that pertain to the survey data.

Added practice:

♦ Sort the *Name* and *Used* columns by clicking on them.

♦ Right click on the level names to view the level popup options. Practice using these shortcuts.

25. Close the *Level Display* dialog.

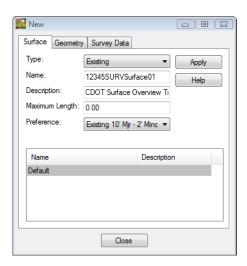# Lab 4.2 - Exporting Survey Data to Surface Overview

Exporting to a surface DTM will create a triangulation network used for displaying contours, features and spot elevations.

Section Objectives:

- ♦ To export a Survey Fieldbook to a Surface DTM file.
- ♦ Triangulate a surface.
- ♦ Set the surface property for display.
- ♦ Save a Surface DTM file.

1. Verify the *12345SURV_Fieldbook* fieldbook is active. The active fieldbook will have a red box around the fieldbook button.

2. From the pull-down menu, select **File > New**. The *New* dialog will appear.

3. Select the **Surface** tab.

4. Key in the surface Name: **12345SURVSurface01**
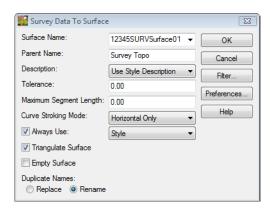
5. Key in the Description: **CDOT Surface Overview Training**

    Note: Key in any additional file information in the *Description* field of the dialog, such as *Date*, *User*, and *Design file* name. There are up to 64 characters available in the Description field.

6. Keep the *Maximum Length* set to **0.00**
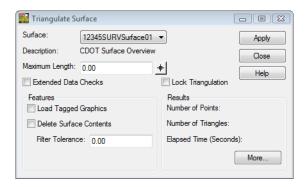
7. Set *Preferences*: **Existing 10' Mjr – 2' Minor**

8. **<D>** the **Apply** then **Close** buttons.

9. From the pull down menu **Survey > Survey Data to Surface**. The *Survey Data to Surface* dialog will appear.

10. Pick **12345SURVSurface01** in the *Surface Name* field.

11. Set the *Description* to **Use Style Description**

12. Keep the *Tolerance* and *Maximum Segment Length* set to **0.00**

13. Set the *Curve Stroking Mode* to **Horizontal Only**

14. Check *Always Use*: **Style**
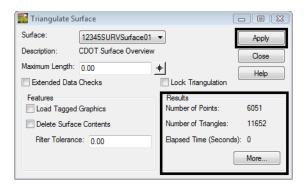
15. Check **Triangulate Surface**

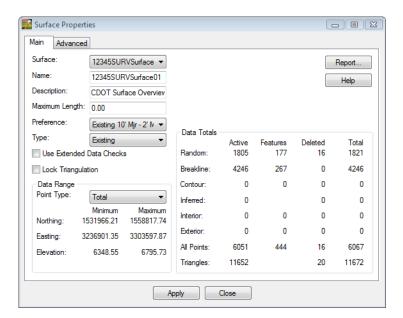16. **<D>** the **OK** button and the *Triangulate Surface* dialog will appear.

17. Leave all settings unchecked. *Maximum Length* should be set to **0.00.**

18. **<D>** the **Apply** button. The *Results* section of the dialog should look similar to the image below.
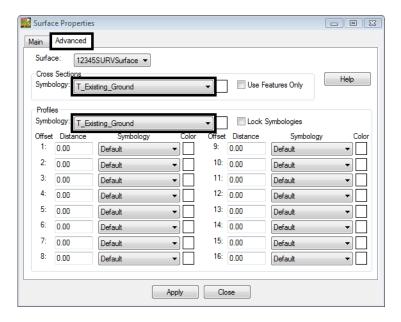

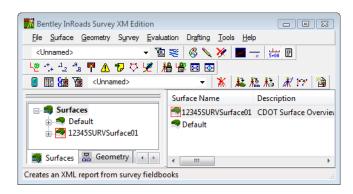19. **<D>** the **More** button. The *Surface Properties* dialog will appear.

20. Verify the correct surface is being used **12345SURVSurface01**.

21. Review the section for *Data Range*. The Easting, Northing, and Elevation values should fall within the project limits.

22. **<D>** the **Advanced** tab.

23. In the Cross Sections Section select *Symbology***: T_Existing Ground**

24. In the Profiles section select *Symbology***: T_Existing Ground**

25. **<D> Apply** then **Close** buttons in the *Surface Properties* dialog.

26. **<D>** the **Close** button in the *Triangulate Surface* dialog.

27. Use the *Workspace Bar* pane scroll *arrows* to view the **Surfaces** tab.

28. Verify *12345SURVSurface01* is the active surface.

> *Note:*   To change the active surface from the pull-down menu
> **Surface > Active Surface**; highlight the surface name and
> **<D>** the **Apply** button.

29. From the InRoads pull down menu select **File > Save > Surface**. The **Save As** dialog will appear with the **Save as type** set to **Surfaces (*.dtm)**.

30. Verify the correct project directory *C:\Projects\12345\ROW_Survey\Working*

31. The file name should match the **Active** name at the bottom of the *Save As* dialog. If necessary, use the drop-down arrow in the **Active** field and reselect the desired name to ensure the saved file name will match the surface name.

    Note: Ensuring that the saved Surface name in the project folder matches the Surface name displayed in InRoads explorer will minimize any confusion.
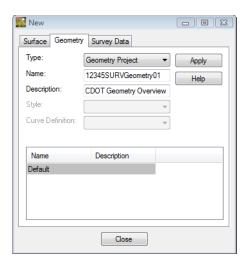
32. **<D>** the **Save** then **Cancel** buttons. The file will be saved to disk and the *Save As* dialog will close.

Lab 4.3 - Exporting Survey Data to Geometry Overview

These steps show how to export the electronic fieldbook to a Geometry Project or ALG file. Exporting to an ALG file will create horizontal and vertical alignments. InRoads refers to all exported topographic strings as alignments. InRoads will also write all survey shot locations to the Cogo buffer. The alignments and Cogo points will then be available for use for Right-Of-Way or design purposes.

Section Objectives:

♦   To export a Survey Fieldbook to a Geometry Project.

♦   To view the geometry project in the InRoads interface.

♦   To save a Geometry Project.

1.   Verify the *12345SURVFieldbook01* fieldbook is active. The fieldbook that is active has the red box around the fieldbook button.

2.   From the pull-down menu, select **File > New**. The *New* dialog will appear.
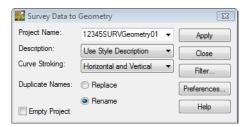
3.   Select the **Geometry** tab.

4.   From the type pick list verify the *Type*: **Geometry Project**

5.   Key in the geometry *Name*: **12345SURVGeometry01**

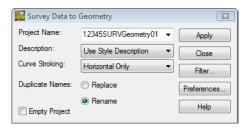6.   Key in the *Description*: **CDOT Geometry Overview Training**

   Note: Key in any additional file information in the *Description* field of the dialog, such as **Date**, **User**, and **Design file** name. There are up to 79 characters available in the Description field.

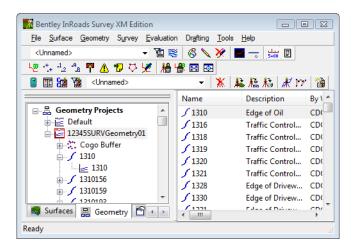7.   **<D>** the **Apply** and **Close** buttons.

8. From the pull-down menu, select **Survey > Survey Data to Geometry**. The *Survey Data to Geometry* dialog will appear.

9. In the *Project Name*: **12345SURVGeometry01**

10. Set the *Description*: **Use Style Description**

11. Set the *Curve Stroking*: **Horizontal Only**

12. **<D>** the **Apply** then **Close** buttons.

13. Use the **Workspace** pane scroll **arrows** to view the *Geometry* tab.

14. Verify **12345SURVGeometry01** is the active Geometry Project.

   Note: To change the active Geometry from the pull down menu
            Geometry > Active Geometry then highlighting the desired geometry project
            name and **<D>** the *Apply* button.

15. From the pull-down **File > Save > Geometry Project**. The **Save As** dialog will appear with the Save as type set to **Geometry Projects (*.alg)**.

16. Verify the correct project directory *C:\Projects\12345\ROW_Survey\Working*

17. The file name should match the **Active** name at the bottom of the *Save As* dialog. If necessary, use the drop-down arrow in the **Active** field and reselect the desired name to ensure the saved file name will match the surface name.

    Note: Ensuring that the saved Geometry name in the project folder matches the Geometry name displayed in InRoads explorer will minimize any confusion.

18. **<D>** the **Save** then **Cancel** button. The file will be saved to disk and the *Save As* dialog will close.

19. From the Inroads pull down menu select, **File > Exit**

20. From the MicroStation pull down select, **File > Save Settings**

21. From the MicroStation pull down select, **File > Exit**

The existing fieldbook has been exported and created 3 specific files from the Survey data. The *MicroStation Design file (DGN)*, an *InRoads Surface (DTM)*, and *InRoads Geometry Project (ALG)*.

In the next section a fieldbook will be created from scratch and then look at the entire process in more detail. This was merely an overview to help getting familiar with the product and to begin to be familiar with the overall workflow. The next sections will work as reinforcement of the workflow process.